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OBSERVATIONS
ON THE
PRESENT STATE OF MEDICAL
EDUCATION

WITH SUGGESTIONS FOR ITS IMPROVEMENT

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PREFACE.



HAVING lately endeavoured to explain the difficulties which are at present experienced by teachers of practical departments in a medical curriculum—from the multiplied courses of lectures, the extension of their respective subjects, and the frequency of distracting examinations, I now beg to offer some suggestions for the remedy of these evils. It is my sincere belief that the measures to be proposed, while very beneficial to some, would not be injurious to any of the interests concerned. But in expressing this persuasion, I must disclaim any sympathy with those who think that the pecuniary considerations of individuals or corporations should stand in the way of what is advantageous for the public or the profession.



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OBSERVATIONS ON MEDICAL EDUCATION.

*(Delivered at a Conversazione of the Royal College of Surgeons,
on the 17th December 1863.)*



DURING the last session of the Medical Council I proposed the following resolutions, which were seconded by Dr. Christison, and agreed to unanimously :—"That the Medical Council resolve to take into consideration at the next meeting the propriety of recommending a reduction in the number of courses of lectures which the regulations of the various licensing boards at present render obligatory." "That, with the view of facilitating the consideration of this subject, the General Council request to be favoured with the opinion of the bodies in Schedule (A) on the possibility and propriety of this before next meeting."

As the licensing bodies will be expected to express an opinion on this subject before the next meeting of Council, I venture to hope that some observations with regard to the points in question will not now be considered out of place; and I further trust that the circumstance of having been constantly engaged in teaching anatomy or surgery during the long period of forty years, together with the nature of my clinical duties, which, by establishing an intimate relation with

students, has enabled me to become well acquainted with their feelings and difficulties, will be accepted as a sufficient apology for my present attempt.

To any one at all acquainted with the progress of medical science in recent times, it must have been obvious that a period was approaching when the load upon students' memories would become so excessive as to require some measure of relief. That the state of matters has actually arrived at this condition very plainly appears from what took place at the last meeting of the Medical Council, when, from England, Scotland, and Ireland, there was a strong expression of desire that the attention of licensing boards should be directed to the evils which result from the present system of over-teaching. It is indeed only necessary to compare any department of the curriculum as it was thirty or forty years ago with what it is now, to perceive the enormous difference which has been gradually introduced between the former and existing amount of burden imposed upon the memory of a candidate for medical honours.

At the time I studied it, chemistry was a science that could be easily comprehended by any ordinary degree of intelligence, and all its details lay within the limits of a moderate compass; but now, instead of being merely a branch of general knowledge, it has spread over a field of such boundless extent as to require the most complete devotion of time and talent for its successful cultivation. Botany, also, in my day was a most agreeable recreation, unfolding the structure

and use of each part in the vegetable economy, explaining the relation of flowers and fruit, and teaching the classification of plants according to the natural and artificial systems: all the information thus acquired being not only interesting in itself, but serving as a useful exercise for the memory, and preparation for more serious study. Now, the case is very different; and botany, I find, has become one of the most oppressive weights on a student's mind. Indeed, the mere terminology for describing the differences of its microscopical objects has swollen into volumes of formidable dimensions. In human anatomy the expansion of ideas has been no less remarkable. Dr. Barclay used to compare modern anatomists with the stubble geese which gathered the grains left by the reapers—such as Vesalius and Fallopius, and the gleaners, under whom he ranked the Hunters and Monros. But the anatomists of our day have far surpassed the stubble geese, since, not satisfied with what was found on the surface, they have turned up the soil, sifted and scrutinized it, in order to discover if they could how it made the corn grow. In other words, by means of their microscopes, they have opened up an entirely new field of inquiry, and thus extended their researches far beyond what the wildest imagination could have anticipated. In the practical subjects there has been a corresponding development; and while we found sufficient difficulty with our three continued fevers of synochus, synocha, and typhus, my colleague, the Professor of Practical Medicine, has placed in the hands of his pupils a

printed list of no fewer than eight hundred fevers !* All the other departments of medicine having been enlarged in a proportionate degree, it is impossible for any one mind to comprehend the whole ; and no time being left for observation or reflection, the education for our profession has become an effort of memory rather than a process of mental training. It is the knowledge of this great evil, together with the prospect of its continued increase, which has led the Medical Council to suggest the importance of devising some means of counteraction.

It is evident that there are only two sources from which relief can be obtained. These are—the regulations of licensing bodies for their curriculum and examinations ; and, secondly, the conduct of courses by teachers. As no one mind can embrace the whole circle of medical science, it is obviously proper, in legislating for professional study, to provide for the acquisition of what is most essential for the purpose in view, and more especially for that part of it which can be obtained only during the period of education. Of this there are two subjects far surpassing all the others in importance. These are practical anatomy and hospital instruction. It is only by dissecting the body again and again, year after year, that the intimate and lasting acquaintance with its structure which is necessary during a practice of forty or fifty years can be impressed on the memory ; while it is

* I stated this on the authority of a student, but have since been informed that there are *only* five or six hundred.

only in the hospital that what may be termed the personal knowledge of disease, or that familiarity with symptoms which constitutes the foundation of its diagnosis, admits of being acquired.

Now, it cannot be denied that at present, what with the multiplicity of classes, and what with the frequency of examinations, there is neither time nor freedom of mind allowed for due attention to any sort of practical study. Thus, I find that second and third year students have seldom more than one hour available for the dissecting-room, where they consequently have hardly put on their aprons before it is time to wash their hands. The remedy for this most unsatisfactory state of matters essentially requires a reduction in the number of classes; and for accomplishing this, the corporations are much more favourably situated than the Universities, since they are fettered in making changes by the vested rights of professors, and by the unwillingness of patrons to abolish Chairs in their gift.

In illustration of the difficulty thus experienced, I may relate what happened with regard to the Chair of General Pathology. This Chair, which exists in no other University or school of medicine in this country, was established by Government for the reception of that able and distinguished man Dr. John Thomson. When he retired, as its object appeared to have been accomplished, and as it was deemed a serious encumbrance to our academic curriculum, the following proposal was made by the late Sir Charles Bell, Dr. Christison, and myself. We offered to give a course

of General Pathology, not for our own profit, but merely to provide funds sufficient for paying the Professor's retiring allowance, on condition that after his death the chair should be abolished. This offer was rejected by the Town Council, to whom the patronage had been transferred, and the chair is still occupied. But the Colleges of Physicians and Surgeons, being subject to no such restriction, should not hesitate to make the changes that seem requisite; and the latter body having taken a lead in the improvement of professional education, by adding to the extent of its requirements, especially in what relates to preparatory study, has now an opportunity of being still more useful, by pruning it of injurious superfluities.

But whatever may be the inconvenience resulting from a redundancy of classes, it shrinks into insignificance when compared with that which is caused by the present system of examination. After thirty years' experience as an examiner, I feel quite satisfied that these means of ascertaining the extent of qualification are productive of little good and very great harm, since they afford no trustworthy criterion of real knowledge, and most seriously interfere with the concentration of mind requisite for obtaining a firm grasp of it. The late Professor of Botany happening one day, while an examination was in progress, to be called away, Dr. Thomson and I took his place, and examined four candidates. We put the most simple questions which any one in the slightest degree acquainted with the subject could not have had the

smallest difficulty in answering, but found two of the four so entirely deficient that we were constrained to reject them. The very next day these gentlemen appealed to the Professor, and passed triumphantly. As a contrast to this case, I may mention another which occurred lately. A gentleman of good talents and studious habits had distinguished himself at one of our Universities in various departments, but especially anatomy, for his proficiency in which he possessed strong expressions of the Professor's approval. He then presented himself to an examining board in London, and, instead of passing with the distinguished honour that his friends expected, was ignominiously rejected on anatomy.

The explanation of such results is, that at the usual age of a candidate the memory is so retentive that it may be stored for a short period with almost any amount, not of real knowledge, but of answers to questions, while a desire on the part of an examiner to pass beyond the limits of such preparation may suggest inquiries very perplexing to a well-informed student. Of the two cases just mentioned, the first is an example of the former, and the second an illustration of the latter source of fallacy. In order to avoid this uncertainty, it has been proposed to give these exercises a practical character by examining on cases in the hospital. But this is worse than absurd, since, while all that is done for the good of patients may and ought to be employed for the instruction of students, humanity forbids the use of their bodies merely for

such a purpose. There could not, indeed, I think, be any procedure more shocking than propping up a poor creature suffering from disease of the lungs, and hammering his chest for the recognition of diagnostic sounds as an academic exercise, or committing a fractured limb to the manipulation of unpractised fingers for the detection of its characteristic crepitus. Besides, candidates for a license do not profess to be practitioners, and therefore could not with propriety be submitted to an ordeal of this kind.

But it is the second objection to examinations which I have mentioned, or their interference with study, that demands the most serious attention. The subjects to be inquired into are now so numerous and extensive, that they are necessarily divided and taken at different periods of the student's progress, so that he is never free from the dread of a coming trial. The inevitable effect of this is, that while professing to study one thing he is thinking of another, and, from being thus distracted, instead of acquiring sound knowledge with a healthy appetite, slavishly gets up the answers which he is led to expect will be required from him. There is no year free from this disturbing influence; and the demonstrator of anatomy, Mr. Turner, informs me that he has remarked a progressive falling off in the dissecting-room since the new regulations came into force, and more particularly says, that many first and second year's students assign as the reason for not dissecting at all, that they have to pass the preparatory, or elementary professional examination. This

interference with study is, if possible, still more injurious in the third year,—that most important of the whole, when the student, having gone through the elementary departments, enters upon the practical subjects of his profession. For the first six weeks—that is, from November to Christmas—he may show some interest in his pursuits; but then spring approaches with all the looming horror of an examination in anatomy, chemistry, and physiology. From that time he relaxes his attention, becomes listless in his demeanour, and broods incessantly over the impending crisis of his fate. Thus he passes on, with a no less loaded memory than unfurnished mind, to join the rank of mediocrity, beyond which it is difficult to aspire with success under the present system of medical education.

On the whole, therefore, I have no hesitation in expressing my opinion, that the existing plan of examinations should be entirely abandoned. In the first place, because they are altogether inefficient for accomplishing what they profess to do; secondly, because they most seriously interfere with the acquisition of real knowledge; and, thirdly, because there are other means by which they might be superseded with great advantage to all the interests concerned.

I here allude to class examinations, which are now by many teachers conducted methodically through written questions, and record of the answers kept, in accordance with which the certificates of attendance are given. This system, if generally adopted, would afford far better evidence of professional attainments

than can be obtained from the plan now followed, while, instead of distracting the student's attention from his proper object, it would prove a constant and powerful stimulus to exertion in mastering each department of the curriculum. From first to last he would thus have but the one object of qualifying himself for the practice of his profession, and not feel, as at present, that he is loading his memory with a quantity of useless lumber, which must be thrown aside before he can acquire any useful information.

I approach the subject of teaching with the consciousness of being about to tread on tender ground ; but, knowing that my opinions on this subject are the mature result of long and careful observation, feel no scruple in freely expressing them.

The great object of teaching is to promote the acquisition of learning ; and, unless it accomplishes this, may be regarded as useless, although characterized by the most brilliant eloquence and the profoundest science. It has been too generally supposed that the mere enunciation of facts and opinions constitutes teaching ; but this may require for its reception only an exercise of memory, while learning is an act of the mind that may be likened to the digestion and assimilation of bodily nourishment. The teacher should excite and maintain the appetite for this mental food, and supply it in such quantity, quality, and order as may be most conducive to the end in view, taking care not to oppress the memory with unconnected crudities, or confuse it with conflicting theories. He should

devote all the talent he possesses to the subject of his tuition, and cultivate it to the utmost of his power, so as to take a position among fellow-labourers in the same field, that may command respect for the opinions which he expresses. But, in addressing his pupils, he should entirely forget himself, and think only of the wants it is his duty to supply. It is to be feared that all teachers do not pursue this course, and that some of them, making the duties of instruction subservient to the gratification of their own self-esteem, or the indulgence of peculiar fancies, not only misspend the time of their pupils, but withdraw their attention from the true path that leads to eminence.

Having now endeavoured to explain the evils which result from a redundant multiplicity of classes, the present system of examinations, and the erroneous conduct of teachers, I may say a few words with regard to the means that might be employed for remedying these imperfections. In the first place, I think it should be made quite imperative to pass the examination for preliminary qualification before commencing the strictly professional course; secondly, I would prohibit this course from being commenced before a certain age; thirdly, I would require three or four years' study in some school or schools possessing a large hospital with ample means for practical anatomy; fourthly, I would require attendance upon all the classes that seemed really necessary; and, fifthly, I would demand from every candidate for a diploma or degree a certifi-

cate from his teachers that he had afforded evidence of due proficiency in their respective departments.

But, while trusting so much to the teacher, I would not, as at present, leave him entirely to himself. It is, unhappily, too true that, both within and without the walls of universities, there has been—and, no doubt, will be taught—not only much nonsense, but doctrines positively injurious in the practice of our profession,—the understanding seeming to be that a teacher, once recognised, should be allowed perfect freedom in regard to the matter of his instructions. Instead of this too-confiding system, I would have every lecturer called upon from time to time, by the body from which he derives authority, to produce a syllabus of his course ; and if it should thence appear that he loaded the memories of his pupils with undigested or undigestible details, or allowed an unruly hobby to carry him away from the field of practical utility into the regions of unprofitable speculation, or, still worse, taught doctrines not conducive to sound practice, I would endeavour to correct the evil of his ways by remonstrance, by censure, or if necessary, by deposition.

Such being the views in regard to medical education which experience and reflection have suggested, I leave the members of my profession to determine how far they merit approval, and how far they admit of application in practice.

SUGGESTIONS FOR THE IMPROVEMENT OF MEDICAL EDUCATION.

HAVING been requested by the Scottish branch of the Medical Council to propose a plan for remedying the imperfections which are admitted to exist in the present system of Education, I beg to offer the following suggestions :—

In order to accomplish all that seems requisite for the various interests concerned, it would be necessary to modify the Medical Act, to rescind some of the ordinances enacted by the University Commissioners, and to alter considerably the present system of teaching, as well as examination. Such extensive innovations may at first sight appear no less impracticable than inexpedient, but when more closely considered, will it is hoped, be found not so objectionable.

The Medical Act overcame one great difficulty which had proved the most insurmountable in all previous attempts to organise a measure of reform. This was the constitution of a Council. So far the profession seems to be satisfied, but in other respects it calls loudly for a change in the details, and at present there are under consideration various clauses for a new Bill. There is now, therefore, a convenient opportunity of introducing any improvement deemed requisite.

With reference to one important point, which may indeed be regarded as its chief object, there can be no doubt that the existing Act was constructed through the influence of selfish considerations, and by completely ignoring the great principle of medical reform, that the privilege of practice should be equal to the extent of qualification, in the sense of education. The Act, it is true, would have established this long desired uniformity, but for the interpretation of six words introduced into the 31st clause, which reads thus:—"Every person registered under this Act shall be entitled, *according to his qualification or qualifications*, to practise medicine or surgery, or medicine and surgery, in any part of her Majesty's dominions." Doubts were entertained as to what the words which I have placed in italics really meant. In all the discussions which had taken place before the Act was passed—during the thirty years' war of medical reform—education and qualification were used as synonymous terms. But a majority of the Council decided that the amount of education was of no consequence in regard to the extent of privilege, and that the term "qualification" had reference merely to the legal import of each title inserted in the register. Hence, the degree of a University, although requiring from its possessor the most ample study and examination in surgery, was held to give no authority except for the practice of physic. It necessarily followed from this reading of the act, that no medical man could be employed for the public service, whether in a civil or military

capacity, without having what was called a double qualification, and hence the Universities were constrained to dub their graduates Masters of Surgery.

The surgical corporations having been thus deprived of their anticipated monopoly in qualifying for the practice of Surgery, and being now able to consider the subject dispassionately, will, it is hoped, not object to such a modification of the Medical Act as may render unnecessary any longer the sacrifice of reason to alleged expediency. One man may practise surgery, and another may practise physic; but neither of them can do so without studying both departments of the profession, and therefore, when the register, as at present, contains the names of persons qualified to practise surgery alone, it proclaims an absurdity which is notoriously contrary to fact, since many of those so registered are much more employed in medical than surgical cases. The preamble of the Act states it to be expedient "that persons requiring medical aid should be enabled to discriminate between qualified and unqualified practitioners." But if the present register were a safe and trustworthy guide, it would prevent patients from applying to any Hospital Surgeon in London for the treatment of a medical complaint.

In the event of a new bill being proposed, I would beg to suggest that no person should be registered who did not possess a degree, or license or licenses, implying sufficient study of both physic and surgery, and that every person so registered should be entitled

to practise his profession in all its branches, in every part of Her Majesty's dominions. If a licensing body should choose to limit its qualification to one department, the defect might be supplied by another ; but if the education and examination required by any of the bodies in Schedule (A) of the Act, embraced the whole field of professional study, there would be no occasion for a double title.

The ordinances of the University Commissioners for Medical Graduation stand greatly in need of revision, which will not appear surprising when it is recollected that they were framed by a body composed of lawyers and country gentlemen who, with the best intentions, had no personal knowledge of the subjects concerned. Thus, while the General Medical Council and the whole profession regard, as of the utmost importance, that the preliminary qualification should be ascertained before the commencement of professional study, the Commissioners have allowed the examinations for this purpose to be taken during its progress, so as to place the Universities in the painful position of being obliged to appear the supporters of a bad system.

Then the Commissioners have established two stages in Medical Graduation, of which one confers the title of Bachelor, and the other that of Doctor ; the first being obtainable after three professional examinations at twenty-one years of age, and the second at twenty-four, after, at least, two years spent in the public service, or private practice, or attendance

at a hospital, together with examinations in Greek, logic, the higher mathematics, moral philosophy, etc., etc., etc. Now this is obviously an attempt to assimilate the Scottish Universities to those of Oxford and Cambridge. But the English Universities are not known as medical schools, and the value of their degrees depends chiefly upon the evidence of classical accomplishment which they afford, while the Universities of Scotland are the great medical seminaries of the country, with teachers in every department appointed by public authority, with large hospitals, and with every other requisite for practical study. The cases of these institutions are therefore wholly different, the object of the former being to prepare a few fashionable physicians for metropolitan practice, and that of the latter to provide efficient medical assistance for the general wants of the community.

The Universities of Edinburgh, Glasgow, and Aberdeen, at present educate more medical students than all the schools in London put together, which will not appear surprising when, in addition to the advantages of regularly constituted establishments, it is known that teaching, instead of being, as elsewhere, considered merely a step to something better, is in Scotland regarded as the most honourable occupation of professional life, no amount of private practice interfering with its exercise, so long as the experience acquired can be rendered useful to the student.

In these circumstances, nothing could be more inexpedient, than the system of graduation enacted by

the Commissioners, and no time should be lost by the University Courts in requesting the Privy Council to sanction its repeal. If through a new Medical Act the necessity for double qualifications is happily abolished, the Mastership of Surgery may also be consigned to oblivion, so that all who complete their academic curriculum may at once possess the honourable designation of Doctor, which, implying the complete study and examination of both physic and surgery, will confer equally extensive privileges of practice. In regard to legal qualification, the universities and corporations will thus be placed upon equality ; but the former may fairly add a year to their curriculum, and require some additional subjects of study, preparatory as well as professional.

In determining the minimum extent of medical education, there are three points to be considered. These are, the age proper for its commencement ; 2d, The subjects to be studied in its progress ; and, 3d, The length of its duration. In the opinion of all competent judges, it is not expedient that the strictly professional course should be entered upon before the age of eighteen, since at an earlier period the mind can hardly be sufficiently imbued with preparatory information, and is not strong enough to take the firm grasp of fundamental principles requisite for the acquisition of sound medical knowledge. The subjects of a preparatory kind that seem truly essential, are English, Latin, arithmetic, mathematics, and physics, and there can be no doubt that the student's qualifica-

tion thus far should be peremptorily required before he is admitted to his professional course, or, at least, to reckon it as a part of the curriculum. Of the professional subjects there are five which should be studied during at least five months, and with at least four lectures a week—to wit, Chemistry, Anatomy, Anatomy and Physiology, Principles of Surgery, and Principles of Physic ; and three which ought to be studied during at least three months, with at least four lectures a week—to wit, Materia Medica, Midwifery, and Medical Jurisprudence ; Practical Anatomy and Clinical instruction in the hospital being extended nearly, if not entirely, over the whole period of study. For the accomplishment of what is here proposed, less than three years, with a winter and summer session in each, would certainly prove insufficient.

In order to obtain the requisite amount of instruction from such a course, but more especially to allow development of the mind through private reflection, and the earnest pursuit of particular researches, it is absolutely necessary that the student should not be distracted by examinations clashing with the subjects of study, or affording scope for the baneful system of cramming. The teacher, by regular class exercises and written answers to questions, may not only ascertain the progress of his pupils, but preserve a permanent record of their qualification, so as to supersede with great advantage the present most deceptive and injurious system of stated formal investigations, for which preparation may be made by grinding. It

has been objected to this plan, that some teachers might not faithfully discharge the duty thus confided to them ; but as they all derive authority from a University or corporation, it would be easy for that body, by means of its examiners, or other delegates, to ascertain by their presence and examination of the papers, that there had been no undue laxity permitted.

The Medical Council, as I have already said, are now considering the clauses for a new Act, and if they choose, may readily introduce what is requisite for doing away with the double qualification. The University Commission has ceased to exist, and the governing power is in the hands of University Courts, which have already obtained alterations of the ordinances from the Privy Council, so that little difficulty would probably be experienced in carrying out the arrangement which has been suggested in regard to graduation. The evils also attending an excessive multiplicity of classes and frequently recurring formal examinations, are now so generally admitted that the limitation of study, together with the recognition of class exercises, as a test of qualification, seem likely to find favour with the licensing bodies. I therefore venture to hope that the proposals which have now been suggested for placing Medical Education on a better foundation will not appear so impracticable as they may have done when first mentioned.
